10/27/04

Institutionalizing Material Flow Accounts in the Federal Government
White House Conference Center
July 20, 2004
Meeting Report

SUMMARY

On July 20, 2004, 25 people from nine federal agencies and departments, along with 12 people from the environmental and natural resources research community and the private sector, gathered at the White House Conference Center in Washington, DC, for an in depth discussion about institutionalizing material flow accounts (MFA) in the federal government.

The group considered a diverse set of program and organizational issues. While the group did not attempt to reach consensus on any of the issues, several major points emerged:

- Material flow accounts could be useful to the federal government and the private sector in a variety of ways. The particular uses need to be articulated, prioritized and publicly discussed to a greater extent than they have been to date. Case studies, descriptive materials and dialogue in a variety of fora would all be helpful.

- An ongoing system of material flow accounts will require federal leadership and teamwork, as well as partnership with the private sector. The federal government has several organizational options in this regard. Funding is an issue, but useful new products should be able to attract funding.

- Staff from the interested federal agencies and departments should continue their joint efforts to develop implementation approaches and to organize discussions at the senior policy level. An outside advisory group would be useful. Full implementation is years away but limited implementation can be accomplished quickly.

MEETING REPORT

A Word About This Report

The workshop included about six hours of discussion. For the sake of brevity and readability, this report frequently groups together points made by several individuals and does not necessarily present points in the order expressed. No names are associated in this report with points that were made, except for the introductory speakers. Since no attempt was made in the workshop to reach consensus, no consensus should be implied by the statements in this report. While this report was drafted using several sets of notes and has been reviewed by meeting

participants, it should not be viewed as an "official" report. Comments and questions on this report should be directed to Derry Allen (allen.derry@epa.gov, 202-566-2167).

The report includes three appendices: Appendix 1: Agenda; Appendix 2: List of Participants; and Appendix 3: Description of Material Flow Accounts and Context for the Workshop.

Background

Material flow accounts track the movement of materials from extraction to manufacturing, product use, reuse/recycling and eventual disposal, showing emissions to the environment at each step.

In August 2003 the National Academy of Sciences/National Research Council released a new report, *Materials Count: The Case for Material Flow Analysis.*[1] The report: (1) finds that material flow accounts could be of great value to the U.S. in the context of economic, national security resource and environmental policy, (2) recommends that the U.S. develop and regularly update material flow accounts, and (3) lays out some steps for the Federal Government to consider.

In April 2004 the Organization for Economic Cooperation and Development (OECD) issued a "Council Recommendation on Material Flows and Resource Productivity," recommending that member countries take steps to develop material flow accounts and assist each other in this process.[2] OECD members have now outlined a three-year plan of work.[3]

The July 20, 2004, workshop with staff from Federal agencies and outside experts from the NAS committee that wrote the report and elsewhere, was organized to sharpen the issues facing the Federal Government on the question of institutionalizing the production and use of material flow accounts. The meeting was organized jointly by staff from the Federal agencies that participated. Principal arrangements for the meeting were made by EPA's National Center for Environmental Innovation, as part of the Center's ongoing series of Environmental Policy Forums. See Appendix 1: Agenda.

Participants

The 25 staff from nine federal agencies and departments who participated in the workshop were from the Council on Environmental Quality (CEQ), the Office of the Federal Environmental Executive (OFEE), the Environmental Protection Agency (EPA), the U.S. Geological Survey (USGS) [Department of the Interior], the Department of Energy (DOE), the National Science Foundation (NSF), the Department of Commerce (DOC), the U.S. Forest Service (USFS) [Department of Agriculture], and the Army Environmental Policy Institute (AEPI) [Department of Defense].

The 12 non-federal participants included four members of the National Academy of Sciences (NAS) committee that produced *Materials Count*. The 12 individuals were from four universities (Illinois-Chicago, Iowa State, Missouri-Rolla, Yale), the NAS staff, the New York Academy of Sciences staff, the World Resources Institute (WRI) and the International Copper Association. See Appendix 2: List of Participants.

Welcome and Introductory Talks

- Ted Heintz (CEQ) and Jay Benforado (EPA) welcomed the group. Ted put MFA in the broad context of indicators of natural resources and the environment. Jay stressed the importance of a strategy to work together and the will to carry it through. Derry Allen (EPA) reviewed the background and context for the meeting, including the efforts by various US and international groups. See above and Appendix 3: Description of Material Flow Accounts and Context for the Workshop.

- Larry Grayson (University of Missouri - Rolla, and Chair of the NAS committee that produced *Materials Count*) summarized the NAS committee's report (see above), especially noting the usefulness of MFA for public policy.

- Tom Graedel (Yale and a member of the NAS committee) described the MFA work he and his Yale colleagues are doing. He described some of the challenges that his group is facing and that others must also face, such as choosing what materials to track and at what level of detail, and defining data formats that will handle large quantities of data in a flexible manner. He noted that these issues need much attention and suggested a workshop to explore them further. He further reflected that while much research and analysis can be done by non-government groups, government is needed to gather the data.

- Don Rogich (Consultant to the World Resources Institute) reviewed the work that WRI has done on MFA over the past eight years.[4] WRI has chosen some topics and methods that are different from those that the Yale group has chosen, illustrating how these choices affect the manner in which the results can be used. He also stressed the need for government to make connections with the business and environmental communities.

1. The Need

- The particular uses of MFA need to be articulated, prioritized and publicly discussed to a greater extent than they have been to date.

- The information needs to be organized for a broad range of uses - federal and societal. The policy context for MFA includes economic, strategic, natural resource, environment and human health issues. MFA can help business save money and target where to do business. MFA can be done and can be very useful on many scales - local to global.

- There are two approaches to the issue of data use that are important to consider in planning MFA implementation. On the one hand, it is important to shape the effort by focusing on how to use data to solve particular problems; look for value added and costs/benefits of creating accounts. On the other hand, it is impossible to predict all the ways that people will want to use data and there is value to having data available for people to use in ways we have not yet identified.

- MFA can help people think in new ways about supply/demand for materials, government policies and tradeoffs between policies. Environmental policy is one example of such a government policy; understanding the flows of toxic substances is critical. Land management is another example; MFA can help inform land managers about what activities are and will be demanded of the land and why - e.g., demand for forest products. Public understanding of resource issues is also a very important use for MFA.

- MFA can help us figure out what data we most need to collect. It could encourage better recycling information (currently a weak link), better life-cycle information on resources and products and global stocks and flows. It is important to look at both large flows and certain small flows that pose significant hazards.

- We need a comprehensive analytical framework that includes different types of indicators: leading, coincident and lagging. Accounts are descriptive, not normative. They are macroindicators - not policy prescriptive but policy relevant. We should consider stocks as well as flows. We also need standard data methodologies and data quality standards.

2. The Task

- Several assumptions about the task of institutionalizing material flow accounts were articulated:
  - Federal leadership is necessary if we are to have a robust and ongoing set of MFA.
  - The task will require serious partnerships. No one agency can do the job alone. We will need complete engagement of parties outside of government, especially business and state governments.
  - The US can be an international leader on MFA; currently we are in the middle of the pack among nations.
  - There is much data available; MFA does not require a lot of new data collection.
  - MFA's should be easily available to the public and business.
  - It is useful to think big, even if we have to start small.

- Several tasks associated with MFA were discussed:
  - accounting: need a framework and set of priorities on what questions are most important; document data fully; should be done by government.
  - data collection and initial assessment: best done by a government unit

- analysis: can be done in and out of government
- research: can be done in and out of government

- A related question is whether government should accept the responsibility to fill a given information need in the first place, instead of having private parties do so on their own. If the answer is yes, then there is the question of whether the government should assemble information with federal staff or pay someone else to do it.

- MFA would need a principal "home" in government. MFA needs to be away from policymaking, where people can share data and have confidence in how it will be treated. At the same time it needs the direct help of all the interested agencies (none of which are in a position to take on this task alone). MFA also needs stable funding.
  - While most people agreed that there is no single, logical "home," several people suggested that USGS would be a good place, with help from across the government.
  - Several points were made in response by various people:
    - It is important to define exactly what the role of USGS might be. USGS is very protective of its neutral image, which is important to its credibility and how it gets its information. The primary goal of USGS is to make assessments, not decisions; information helps public and private customers make decisions.
    - Data gathering can be done in many places. Statistical reporting is appropriate for USGS. Policy analysis should be done elsewhere. Consider the examples of the Bureau of Economic Analysis (Department of Commerce) and the Energy Information Administration (Department of Energy).
    - Partnerships are very important to USGS.
    - New work at USGS would need new funding. A useful new product, such as MFA, should be able to attract such funding.
  - Other organizational models considered by the group included the independent organization (within the Executive Branch) suggested by the NAS and a public-private consortium, similar to the Health Effects Institute, which is funded by government and the auto industry.

- Several participants suggested consideration of phased plans that would include the following elements:
  - 1 year: talk to senior agency managers; set up a steering committee; consider what accounts to start with; consider first steps and a long-run vision of a system.
  - 2 years: start working - produce something to demonstrate value - accounts on a few materials; $1.0-1.5 million and 4 full-time equivalents (FTE) would enable completion of the first accounts.
  - 5 years: get a system in place; need legislation mandating MFA (start planning for it now); $5 million and 20 FTE would enable annual reports.

- Other points included:
  - The budget for MFA would eventually be driven by its own success.
  - Consider issues of data security and misuse of information - major concerns for industry.

- The story of the first U.S. national economic accounts was discussed as an example to consider. In 1932, Senator Robert LaFollette spearheaded a resolution requesting the Executive Branch to create national economic accounts, to help the government understand how to address the serious economic problems the country was facing in the depths of the Depression. Within two years, a small unit in the Commerce Department, led by the young future Nobel Prize winning economist Simon Kuznets, produced the first accounts. In the succeeding decades, these accounts have been expanded and improved and accepted by the public to the point where few people today can imagine not having and using these accounts.

3. Next Steps

- Anticipate and consider the questions that senior policy level officials, such as Assistant Secretaries, are likely to ask:
  - What exactly do we want to do? Who wants MFAs and for what purposes? Is it important to our agency?
  - How will this data set be maintained and by whom? How big are the data gaps?
  - Do we want to start constructing accounts now or do more research first? What level of detail do we seek? Do we want to adopt a problem-specific or broad approach?
  - How many dollars and people will we need? What are the pros/cons and costs/benefits of the different alternatives?
  - What can one or more Assistant Secretaries do to get the ball rolling?

- Interagency partnership is essential.
  - The current informal interagency staff group that is discussing MFA can stay informal for a while but at some point it needs to become more formal. The informal group needs to develop a plan.
  - The interagency natural resources indicators group can be an umbrella group for an MFA group.
  - An interagency dialogue at the senior policy level is essential. The ground work for this step can be laid now. It is not clear when a first senior policy level group meeting should be.
  - How and when should the Office of Management and Budget be engaged? The Congress?
  - Some type of high-level directive would be very useful to stimulate interagency dialogue and partnership.

- At some point down the road an Executive Order might be very useful. Can CEQ help? Legislation may be difficult to obtain in the near term.
- Political leaders are not opposed but need to be convinced. We need champions at the political level.

- Some immediate potential tasks include:
  - Collect and study examples of how people in the U.S. and other countries (especially Japan and the Nordic countries) have used MFA's and share them, so we can learn from them. Work with other countries on case studies to define user needs.
  - Create communications tools in accessible formats for agency leaders, Congress, states, business community, general public. Describe a vision of MFA and include examples of how MFA can be helpful to the work of many public and private groups. Among other products, consider a fact sheet with FAQs and a two-page brochure. Put information and links on agency web pages.
  - Engage a broad set of constituents in multiple fora to discuss what types of MFA would be most useful to them. Use existing networks, e.g., state organizations, EPA programs such as Performance Track (high performing companies) and the Sector Strategies Program, as well as networks used by other agencies. Include the General Services Administration and the U.S. Trade Representative. Engage the research community to get their advice and help them shape future work to meet practical needs. Now is a good time for this discussion.
  - Increase the dialogue with business. Business can be very helpful in crafting the message and gathering support. We need to significantly expand the dialogue with business. Consider working with the U.S. Business Council for Sustainable Development and the World Business Council for Sustainable Development.
  - Nominate several materials to be the subjects of the first accounts, perhaps starting with lead, steel, 1 or 2 energy flows, biomass, and/or some "problem" flows (e.g., mercury, arsenic). Use these nominations to focus public discussion.
  - Start with a cross-agency group and an outside advisory group. Ask the groups to do a study of likely costs and benefits of different options.

- Other thoughts and considerations that were offered:
  - It will be easier to gain consensus if we focus first on the substance and save the organizational questions for later.
  - People from outside the Federal Government need to lobby on the Hill.
  - This is a task for collaborative problem-solving.
  - Global stewardship of the planet can be a highly effective mobilizing vision. MFA can be a practical step.
  - Workshop participants can use this summary to generate discussion with colleagues. This discussion is particularly important for Federal staff because many of them do not yet have agreement with the people for whom they work to spend much time on material flow accounts.

Appendix 1

Institutionalizing Material Flow Accounts in the Federal Government
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Agenda

8:30	Registration and coffee	
9:00	Welcome	Ted Heintz (CEQ) Jay Benforado (EPA)
	Self Introductions	Participants
9:15	Overview of the context and the plan for the day	Derry Allen (EPA)
9:30	The NAS report: *Materials Count*	Larry Grayson (UM-Rolla)
9:45	Perspective on material flow accounts	Tom Graedel (Yale)
10:00	Perspective on material flow accounts	Don Rogich (WRI)
10:15	Break	
10:30	Panel #1: The Need	Panel members: Ted Heintz (CEQ) Kate Johnson (USGS) Deb Shields (USFS) Tom Theis (U.of IL-Chicago)

- What are the emerging and potential uses of material flow accounts in the federal government and other public and private entities?
- For which materials would material flow accounts be most immediately useful?
- What should be the priorities for major categories of information that are included in U.S. material flow accounts? What parts of this information are collected now by the federal government or by others (and can be contributed)? What new information and research are needed?
- What are the opportunities for collaboration, such as with national indicator projects, private organizations?

11:45	Lunch	

12:45 Panel #2: The Task Panel members: Dan Tunstall (WRI)
Jim McNeal (USGS)
Jay Benforado (EPA)

- What can we say about how big a task will it be to construct and maintain U.S. material flow accounts (very rough estimates of costs, interorganizational cooperation, etc., for both startup and general operation)? How would we determine these costs in more detail? How do these costs compare to what we already invest to collect the basic information?
- What are the organizational options for the federal government? Consider in-house options, such as the four discussed by the NAS panel, plus any other options. Identify pros and cons for each.
- Identify possible steps and targets for the next 2 years, 5 years, 10 years. How should priorities be chosen?

2:15 Break

2:30 Panel #3: Next Steps Panel members: William Dillingham (USGS)
Betsy Shaw (EPA)
Ed Pinero (OFEE)

- How should we plan a policy level meeting on institutionalizing material flow accounts in the federal government? Who should be around the table? What are the major questions and options that should be addressed at such a meeting? What should we expect to accomplish at the meeting?
- What other types of activities/research/analysis are needed inside and outside the government to get the ball rolling?

4:00 Adjourn

This meeting has been organized jointly by staff from eight federal agencies and departments: the Council on Environmental Quality, the Office of the Federal Environmental Executive, the Environmental Protection Agency, the U.S Geological Survey (Department of the Interior), the Department of Energy, the National Science Foundation, the Department of Commerce and the U.S. Forest Service (Department of Agriculture). The White House Conference Center has supplied the meeting space, for which the participating agencies and departments are grateful.

Principal arrangements for this meeting have been made by the Environmental Protection Agency's National Center for Environmental Innovation. The meeting is part of the Center's ongoing series of Environmental Policy Forums, which are designed to engage experts in dialogue about specific issues that will help define the next generation of environmental policy. Events are planned independently and in conjunction with other organizations that want to explore and advance innovative concepts for improving performance.

Appendix 2

Institutionalizing Material Flow Accounts in the Federal Government
White House Conference Center
July 20, 2004
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Appendix 3

Description of Material Flow Accounts and Context for the Workshop

Description of Material Flow Accounts

Material flow accounts track the movement of materials from extraction to manufacturing, product use, reuse/recycling and eventual disposal, showing emissions to the environment at each step. A recent report by staff from eight federal agencies and departments[5] found that these accounts can offer the Federal Government and others a basis on which to innovate in a number of important ways, especially as we face population, economic and technological changes at home and around the world:

(1) improve economic, trade and national security, and technology development policy by enhancing our understanding of the material basis of the economy;
(2) improve natural resource policy (minerals, fiber, energy) by enriching system-wide, life-cycle information on the status and trends of materials sources and uses, and other aspects of supply and demand; and
(3) improve environmental policy by helping to identify categories of pollution sources, develop materials-based and product-based environmental strategies and promote reuse of what is currently discarded.

Material flow accounts do this by helping us to organize information collected by government agencies and others (much of it is already collected) in order to gain new insights, improve communication, set vision and priorities and track progress. They do not necessarily lead to any particular government policies. If the Federal Government produced material flow accounts, the accounts would be similar in many ways to the national economic accounts.

Context for the Workshop

In August 2003 the National Academy of Sciences/National Research Council released a new report, *Materials Count: The Case for Material Flow Analysis.*[6] The report (1) finds that material flow accounts could be of great value to the U.S. in the context of economic, national security resource and environmental policy, (2) recommends that the U.S. develop and regularly update material flow accounts, and (3) lays out some steps for the Federal Government to consider.

In October 2003 a group of staff from eight Federal departments and agencies met at the Council on Environmental Quality to discuss how the Federal Government should respond to this report. The group agreed on a three-step process: (1) to set out in its own words how material flow accounts can be useful to the Federal policymaking; (2) to hold a workshop with staff from Federal agencies and outside experts from the NAS committee that wrote the report and elsewhere, to sharpen the issues facing the Federal Government as we consider how to institutionalize the production and use of material flow accounts; and (3) to convene a policy level dialogue between the interested departments and agencies.

In April 2004 the Organization for Economic Cooperation and Development (OECD) issued a "Council Recommendation on Material Flows and Resource Productivity,"[7] recommending that member countries take steps to develop material flow accounts and assist

each other in this process. An OECD workshop followed in June 2004. Participants from 18 countries outlined a three-year plan of work.

Step 1 in the process described above was the previously referenced paper: “Material Flow Accounts: How They Can Be Used As An Information Tool for 21st Century Public Policy”). The July 20, 2004, workshop was Step 2.

Endnotes

1. National Academy of Sciences/National Research Council (NAS), *Materials Count: The Case for Material Flows Analysis* (Washington, 2003), available at http://books.nap.edu/books/0309089441/html/index.html

2. Organization for Economic Cooperation and Development (OECD), "Recommendation of the Council on Material Flows and Resource Productivity," 21 April 2004.

3. OECD Working Group on Environmental Information and Outlooks, OECD Workshop on Material Flows and Related Indicators, 17-18 June 2004, Helsinki, Finland, "Chair's Summary," ENV/EPOC/SE(2004)2.

4. See, for instance, World Resources Institute (WRI), *The Weight of Nations* (Washington, 2000), available at http://materials.wri.org/pubs_description.cfm?PubID=3023 .

5. "Material Flow Accounts: How They Can Be Used As An Information Tool for 21st Century Public Policy," unpublished report by staff from eight federal departments and agencies, April 22, 2004.

6. National Academy of Sciences/National Research Council, *op. cit.*

7. OECD, 21 April 2004, *op. cit.*